

**STEM Career Cluster
Resource List**

Resource	Author / Publisher	Location	Notes
Apps for Teaching STEAM	We Are Teachers	http://www.weareteachers.com/community/blogs/weareteachersblog/blog-wat/2013/06/26/60-apps-for-teaching-steam	<i>We Are Teachers Blog</i> lists 60 of its favorite apps for teaching STEAM in the classroom, with recommendations for every grade level.
Asimo: World's Most Advanced Humanoid Robot	Honda	http://asimo.honda.com/default.aspx	Asimo is a walking robot that is a culmination of two decades of humanoid robotics research by Honda engineers. Use resources on this web site to discuss robotics, computer software, physics anatomy, and other STEM topics. Under the Educators section, you will find downloads for use in a STEM classroom.
Autodesk Software	Autodesk	http://www.autodesk.com/education/free-software	Free downloads for Computer Aided Design (CAD) software.
Career Cornerstone Center	Career Cornerstone Center	http://www.careercornerstone.org/fields.htm	This web site can be used to meet course standards related to career exploration. It offers vast resources on over 185 degree fields. Within each area you'll find a profile of the field, and links to profiles of professionals working in each area. There are downloadable lists of employers and degree granting universities, salary data, links to professional associations, and descriptions of different types of academic degrees.
Community Mapping Workshop	Utah Education Network	http://www.uen.org/cmapi/index.html	This web site can be used to meet standards related to geospatial technologies. Specifically look at the following sections: Other Resources, Tutorials, and Lesson & Project Ideas.

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Comparing Engineering Design Process and Scientific Method	Science Buddies	http://www.sciencebuddies.org/engineering-design-process/engineering-design-compare-scientific-method.shtml	This web site provides explanations for the differences between scientist and engineers. Explanations are in graphical, tabular, and text formats. This web site is can be used to meet standards in the STEM Education program of study and those that are applicable to career exploration.
CTE Online	Center for the Advancement of Digital Resources in Education	http://www.cteonline.org/portals/default/default	CTE Online is a single destination for model curriculum, resources, tools and community. Search curriculum by keywords.
Cyberlearning in STEM Education	Public Broadcasting Service and National Science Foundation	http://www.pbslearningmedia.org/collection/cyber/?utm_source=NewFeaturesC&utm_medium=Text&utm_campaign=Homepage	View resources from experts who explain how cyberlearning can provide new opportunities for teaching and learning in STEM education, and see some examples of cybertools you can use.
Design Squad Nation	WGBH Educational Foundation	http://pbskids.org/designsquad/parentseducators/	Teaching resources such as activities, lesson plans, animations, and video profiles. The goal of Design Squad is to give students a stronger understanding of the design process, and the connection between engineering and the things we all use in everyday life.
Digital Electronics	Robert Dueck & Ken Reid	http://www.amazon.com/Digital-Electronics-Robert-Dueck/dp/1439060002	Digital Electronics (2011) is a textbook that would be a good supplement to the Digital Electronics course in the Technology program of study. The ISBN is 978-1439060001.
Digital Quest	Digital Quest	http://digitalquest.com/index.html	Resources for teaching geospatial technology course standards. Teachers will find resources for curriculum, training, and customer support.

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Discovery Education Teacher Resources	Discovery Communications, LLC	http://www.discoveryeducation.com/teachers/index.cfm?campaign=flyout_teachers	Classroom resources for K-12 science and mathematics education. Free resources include interactive games, puzzles, lesson plans, videos and more.
Engineering Go For It!	American Society for Engineering Education	http://teachers.egfi-k12.org/	Consists of teaching resources such as lesson plans, class activities, outreach programs, and web resources.
Free Studio	Free Studio	http://www.dvdvideosoft.com/	This software can be used to download YouTube videos from the internet. This is useful for teachers at schools that block YouTube viewing.
Freebies for Science Teachers	National Science Teachers Association	http://www.nsta.org/publications/freebies.aspx	Free resources for the K-12 STEM classroom.
GeoTech Resources	National GeoTech Center of Excellence	http://www.geotechcenter.org/Resources/Resource-Center	Geographic Information Science (GIS) geospatial technology teaching resources such as best practices, data sources, technology, textbooks, curriculum, organizations, case studies, and career pathways. These resources can be used to meet standards in <i>Introduction to Geographic Information Sciences (GIS)</i> course.
GIS in Education	Janey Smith Camp, Ph.D.	http://vanderbilt.edu/gised/?page_id=81	Vanderbilt University professor Dr. Janey Smith Camp maintains a web site with resources to integrate geographic information systems (GIS) into K-12 education. Resources include sample activities, handouts, presentations, and research papers related to GIS and K-12 education. Dr. Camp is also available to facilitate professional development for K-12 teachers.

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GIS Lessons	ESRI EdCommunity	http://edcommunity.esri.com/Resources/ArcLessons	This web site provides geographic information systems (GIS) lessons for various grades levels. In addition, the lessons use a variety of software including free downloads.
How Stuff Works	HowStuffWorks, Inc.	http://science.howstuffworks.com/robots-changed-manufacturing.htm	This is an article that informs how robots have changed manufacturing. This can be used to meet standards in Robotics and Automated Systems course.
Kibo Robot Project	Kibo Robot Project (Japan)	http://kibo-robo.jp/en/	This resource provides information on the Japanese astronaut robot project. The Kibo Robot Project is a good resource to use for the Robotics and Automated Systems course standards. More specifically, teachers will find the Development Process section very useful.
Links to Information	San Jose State University - College of Engineering	http://www.engr.sjsu.edu/bifurman/courses/ME106/other/mechatronicslinks.htm	This web site provides resources that will be helpful for course standards related to engineering and robotics. Specifically look at the following sections: <i>Design Resources</i> , <i>Robots!</i> , and <i>Software Resources</i> .
NASA's Beginning Engineering, Science, and Technology Program	NASA	http://www.nasa.gov/audience/foreducators/best/edp.html	A resource for engineering design process videos.
National Center for Case Study Teaching in Science	University at Buffalo and National Science Foundation	http://sciencecases.lib.buffalo.edu/cs/collection/	Database of case studies that can be searched by topic and grade level. Topics included GIS, engineering, mathematics, science, and technology.
National Geographic Education	National Geographic	http://education.nationalgeographic.com/education/stem-education/?ar_a=1	Includes teaching resources and references and news (articles for students) related to STEM education and geo-literacy. Resources can be used to meet standards in Introduction to Geographic Information Sciences (GIS) course.

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NCTM Lessons and Resources	National Council of Teachers of Mathematics	http://www.nctm.org/resources/default.aspx?id=230	Includes teaching resources such as lessons by theme, problems by grade and topic, teaching tips, and parent and family resources.
Online Editing Tool – Google Docs	Google	www.google.com	Application for students to collaboratively create and edit project documents. Students will need to register for a google.com account prior to accessing Google Docs.
Robot Information Central	Arrick Robotics	http://www.arrickrobotics.com/robots.html	Online repository for robot information on the internet. Find information such as articles, competitions, kits, and robotic research at universities.
Robotics	Colorado State University, Mechatronics Program	http://www.mechatronics.colostate.edu/resources.html	Select the “Robotics” link to see sources for robotics projects.
Science Daily	ScienceDaily, LLC	http://www.sciencedaily.com	A source for STEM research news. These articles can be used to meet course standards.
Sketch Up	Google	http://www.sketchup.com/	Free download for 3-Dimensional computer aided design (CAD) software.
STEM Classroom Archive	National Science Teachers Association	http://www.nsta.org/publications/archive-stem.aspx	Forum for ideas and resources for middle and high school STEM teachers.
STEM Transitions	Center for Occupational Research and Development (CORD)	http://www.stemtransitions.org/index.php	Source for projects related STEM-intensive career clusters such as STEM, agriculture, health sciences, information technology, advanced manufacturing, transportation, distribution and logistics.
STEM Works	Bobby B. Lyle School of Engineering (Southern Methodist University)	http://www.stem-works.com/	Source for articles, activities, and information on “cool” jobs related to STEM.

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Story Maps	Esri	http://storymaps.arcgis.com/en/	Story maps use geography as a means of organizing and presenting information. They tell the story of a place, event, issue, trend, or pattern in a geographic context. They combine interactive maps with other rich content—text, photos, video, and audio—within user experiences that are basic and intuitive. They use the tools of geographic information systems (GIS), and often present the results of spatial analysis, but don't require their users to have any special knowledge or skills in GIS.
TeachEngineering	Collaborative project between faculty, students, teachers associated with five universities, American Society of Engineering Education and the National Science Foundation	http://www.teachengineering.org/	A digital library collection of standards-based engineering K-12 curricula.
Tennessee STEM Innovation Network (TSIN) Tools & Resources	Tennessee STEM Innovation Network (TSIN)	http://thetsin.org/tools-resources/	A resource for STEM education items including curriculum, lesson plans, videos, activities, strategies, and more.



TENNESSEE DEPARTMENT OF
EDUCATION
DIVISION OF CAREER AND TECHNICAL EDUCATION

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The Geek Group: A New Kind of Maker Space	The Geek Group	http://thegeekgroup.org/	This web site provides access to science, technology, engineering, and math by developing programming and facilities for individuals and institutions to learn, explore, innovate, and play at an independent pace according to their needs. The collection of videos and tools available to members are resourceful for advanced manufacturing and STEM classrooms.
Try Engineering	IBM, IEEE, TryScience	http://www.tryengineering.org/	A portal of information about engineering and engineering careers. This web site is also a source for K-12 experiments and activities, as well as information on summer programs, internship opportunities, and postsecondary engineering programs.
Vanderbilt Initiative in Surgery and Engineering	Vanderbilt University	https://www4.vanderbilt.edu/vise/	Research center that integrates the fields of engineering, robotics, and medicine to develop new procedures and tools to be used in medicine